

Fossil Finding

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FUN WITH FOSSILS

By George Laycock

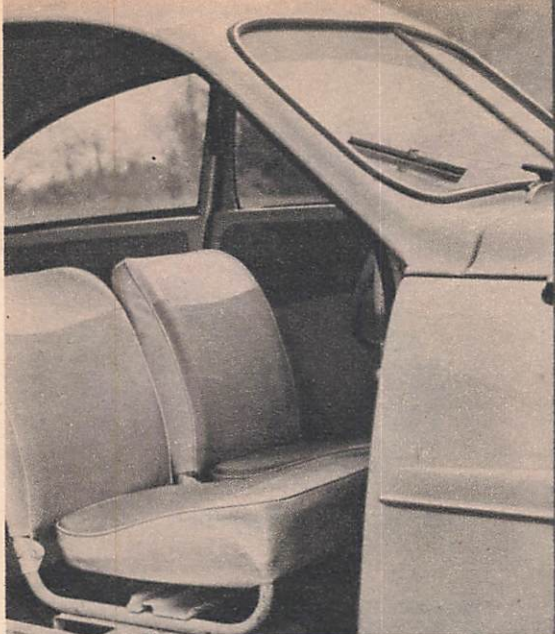
THE Dry Dredgers of Cincinnati, Ohio, are an unusual group who search for treasure that is 400 million years old. They're part of the growing band of amateur fossil collectors who are discovering the fascinating facts that fossils reveal about the history of the earth.

What is a fossil? It's an unusual stone shaped like a plant or animal. And that's exactly what it was many million years ago. By one of the strangest processes in all of nature, the living plant or animal petrified; it turned to stone that lasted through the ages.

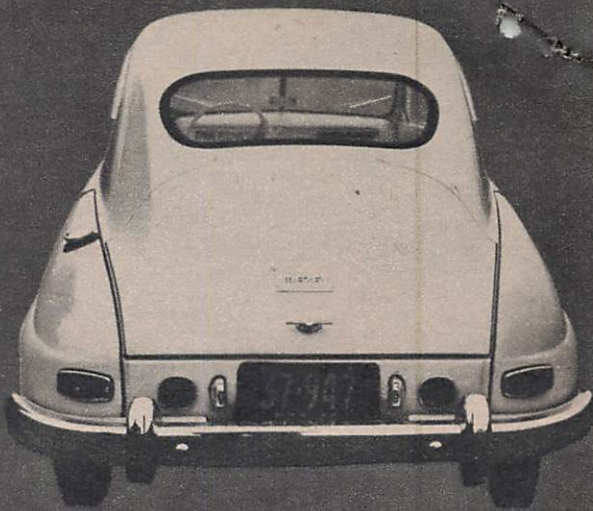
How did this take place? Only a small portion of the plants and animals that have lived on the earth remain as fossils. These were often the ones that lived in the seas and bogs and swamps. They died and settled on the ooze at the bottom of the lake. Sediment drifted in over them. The soft parts of the body decayed and disappeared. But the hard shell was gradually replaced, particle by particle, by sand, limestone or pyrites. Meanwhile, the mud around the fossil was changing to rock and eventually the fossil

CREEK BANKS where earth has eroded are prime fossil grounds.

Mechanix Illustrated



WHEELED BARRACKS can be made by folding front seats forward and back seats down.



REAR END VIEW is reminiscent of American styling in the late '40s and early '50s.

In a two-cycle engine this operation is cut in half: the fuel is drawn in, fired on the downstroke and exhausted on the upstroke. Naturally the overlap between the intake and exhaust valving is much closer and the duration shorter. The objection to this system in the past has been that the exhaust gases were never fully scavenged. But with today's modern fuels and manifolding this is no longer a problem. Now that our Tasmanian reader has gotten his quarter's worth, back to you hipsters.

What first caught our attention, before the Lime Rock spree, was SAAB's outstanding record in American and European rallies and endurance con-

tests. The SAAB has had class wins that range from Germany and Italy to the Great American Mountain Rallye and the Mount Equinox Hill Climb in this country, just to plug a few. The engine is rated at 38 hp and it pushes the SAAB at a top speed of between 72-75 mph. The 0-60 mph time is 20.6 seconds and as you must realize, none of these are enough to cause any eye-popping at General Motors Engineering. So why? Here's what we found out.

My test car was supplied by Jim Mezey, son of the late famous John B. Mezey. Jim and his brother George have taken over Mezey Motors in New York. Their main business is a Lincoln-Mercury dealership, which has been mentioned on these pages many times. I've known Jim since the days when he was still in school and he used to spend his off-hours working in his dad's shop on such simple things as blown Mercedes, piano-wire-controlled Hissos and Winfield-carburetted Rolls-Royces. No one in the United States really knows more about automobiles than Jim and George Mezey. So, when I heard that they had taken on the SAAB, I phoned for an explanation. After all, these boys were brought up on quality machinery and [Continued on page 189]

McCAHILL TESTS

CAR TESTED: **SAAB 93**. Engine: 3 cyls; 748cc; 38 brake hp; 52 ft-lb max torque; 7.3 to 1 compression ratio. Wheelbase 98 ins; height 58 ins; width 62 ins; overall length 158 ins. Gas tank capacity 9.5 gals. PERFORMANCE: 0-30 mph, 5.8 secs; 0-60 mph, 20.6 secs; 40-60 mph, 12.1 secs. Top speed 72-75 mph. All times recorded on corrected speedometer.



TOOLS for fossil hunting should include a hand lens, hammer, pencil, notebook, labels and a box or sack to carry specimens.

and thousands more like it were encased in a layer of rock.

(But not all fossils are petrified. The scientists will tell you that, technically, a fossil is any evidence of ancient life. It may be the insects encased whole in the amber from trees that grew where the Baltic Sea now stands. It may be the jaw of a mastodon or the tooth of a saber-toothed tiger or just the tracks of some ancient giant reptile. They are all fossils and they're nature's history books, the only record we have of ancient life.)

Fossils help people accomplish three things: They offer scientific clues to life on earth millions of years ago. They tell the story of evolution as seen from one layer of rocks to the next. And in the more practical realm, oil drillers can often tell by the fossils brought up by their drills, the approximate age of rock

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AMATEURS are encouraged to collect fossils like this 400-million-year-old trilobite.

GEOLOGICAL TIME CHART

Era	Period	Years It Lasted	Type of Life
Cenozoic	Quaternary		Man and other modern forms
	Tertiary	60 Million	Abundance of mammals; other modern plants and animals.
Mesozoic	Cretaceous	60 Million	Dinosaurs, mollusks.
	Jurassic	30 Million	Reptiles important.
	Triassic	35 Million	Reptiles abundant; conifers appear.
Paleozoic	Permian	30 Million	Rise of land vertebrates.
	Pennsylvanian	30 Million	First reptiles; primitive plants abundant.
	Mississippian	30 Million	First amphibians, first coal-forming forests.
	Devonian	35 Million	Fish, corals, sponges; decline of Trilobites.
	Silurian	30 Million	First land plants; coral reefs appear; Nautiloids, Graptolites.
	Ordovician	60 Million	Nautiloids, Graptolites, Trilobites abundant. First fish.
	Cambrian	From 60 to 105 Million	First well preserved life. Trilobites important.
Proterozoic			Algae.
Archaean			No Life.

NEW

Art

FROM

OLD

JUNK



THE man studying the ornate mug is not thinking of buying it. He's wondering if he has welded enough keys, insignia, cuff links and other golden odds and ends to its surface. Rudolph Ced of Dallas makes a living buying old gold and silver to convert into jewelry and novelty vases and mugs. The latter objects, costly versions of the gilt junk jars of Grandma's day, frequently find themselves in the possession of celebrities like Jackie Gleason. Ced calls them "Dallas Oscars." •

BEANS in a glass locket (don't ask us why) are a suitable addition to a Ced mug.

WATCHES, gold crowns from teeth, collar buttons, all supply metal for his curios.



THINGUMAJIG, picture below, is painstakingly welded to otherwise naked vase.



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Fun With Fossils

[Continued from page 95]

layers through which they're working and how close they may be getting to oil deposits.

Did you ever wonder how old the earth is? So have the scientists, and it was through their study of fossils that they began to understand that the earth was much older than they had thought. They know now that the earth is at least four-and-a-half billion years old. But the fossil records show that there has been life on earth for only a fraction of that time. The oldest fossils yet uncovered were brought to light in 1954 by researchers from Harvard University digging around on the north shore of Lake Superior. They found fossil remains of molds and algae almost two billion years old.

The scientists have divided the history of the earth into periods based on their study of fossil plants and animals in the various layers of rock. And you can help unravel this story, for fossil collecting is one scientific hobby in which the scientists welcome the efforts of amateurs. "The amateur fossil collector," says Prof. F. D. Holland of the University of North Dakota's Geology Department, "can perform a great service. We like to see amateurs collecting fossils."

You can collect fossils in practically any state. A vast shallow sea once covered most of North America and fossils formed on the bed of this sea. The fossils you're most likely to find are those of small marine plants and animals, clams, crabs and primitive plants. Some of the most common ones found in the Cincinnati area, for instance, are the brachiopods which resemble the clams and oysters of today but are usually smaller. Or there are the ancient snails or the trilobites which were related to crabs and spiders.

Fossil hunters out for such prizes head directly for the spots where the fossils are thickest and easiest to find. Creek banks are good, for water erodes the earth and rock away and keeps exposing the fossils. Road cuts are good collecting spots too, once weather has had a chance to expose the fossils on the walls of such cuts. And even basement excavations may yield rich crops of fossils.

[Continued on page 181]

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Fun With Fossils

[Continued from page 178]

How do you go about collecting fossils? The first step is to get what information you can from your state geologist. This will help you locate the richest beds of fossils and recognize them once you've found them. Practically every state has published something to help fossil collectors identify their finds and tell the ages of the rock layers in which the fossils were found.

The fossil hunter doesn't need a lot of expensive equipment. He carries a hammer with a chisel or point on one end. He needs a hand lens, slips of paper for labels, paper for wrapping fossils he wants to take home, and a box or canvas sack in which to carry his treasure.

He collects his fossils carefully and wraps them individually to keep them from grinding against each other. And most important of all, he makes out an accurate label for each one, a label that tells when and where he collected it and the age of the rock layer if he knows it. "A fossil without a label," say the geologists, "is worthless to science."

Experienced Dry Dredgers clean excess rock from their fossils with power tools, small chisels or even with needles imbedded in blocks of wood. A broken fossil can be repaired with plastic cement and the fragile specimens can be mounted in plaster of Paris and coated with liquid plastic. Even clear nail polish will keep the outer surface from crumbling.

The fossil collector stands little chance of finding a fortune in the rocks for there is no ready market for fossils. The challenge that drives him is the ever-present chance of finding a new fossil, something that has never been seen before.

It happened once to John Pope, a Cincinnati high school student who spent every spare moment adding to his fossil collection. While he was collecting on Stonelick Creek, east of the city, he found a fossil different from any he had ever seen. And, just as the amateur should always do in such a case, he took it to the nearest professional, Dr. Kenneth Caster, an expert on fossils at the University of Cincinnati.

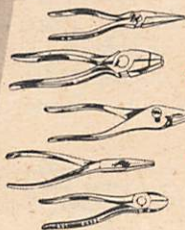
Dr. Caster turned the fossil over in his
[Continued on page 182]

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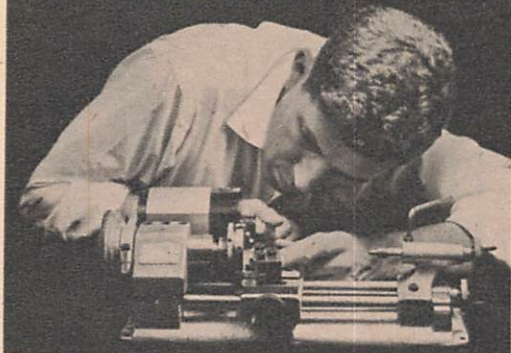
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Fun With Fossils

[Continued from page 181]

hand and studied it closely. He realized that John Pope had brought in the fossil of an ancient animal which, up to this moment, had been unknown to the world. He fitted the find into its proper niche in the history of life and gave it a name; he named it for the high school boy who found it: *Eno pleura popei*. John Pope has since become a professional geologist.

The geologists realize that there must still be dozens of fossils that haven't yet been found and named. That's the big reason why they encourage amateurs to join in the fascinating search for fossils. If you join the fossil collectors you're getting a first hand look at life as it was millions of years ago. Fossil hunting is an exciting, endless search into the ancient history of the earth. The fossils do have a story to tell anyone who takes time to read the rocks. •

Conquest Of Space

[Continued from page 110]

weight in the nose.

The positively stable case is when the CG is ahead of the CP. If there is any little disturbing force which tends to throw the missile off course, it will flip back to its original direction just like an arrow.

It is a rather amazing fact that unguided rockets are nose-heavy. The cure for an unstable rocket involves one of two things, or a combination of them: (1) adding weight to the nose, thereby bringing the CG forward, or (2) adding fin area to the tail, thereby bringing the CP back toward the rear.

It's very easy to make CG determinations on a missile right on the drawing board. But that isn't the case with the CP, particularly if you are dealing with a supersonic missile. Determination of subsonic CP is simple, but the CP moves around in quite unusual ways once you start working at speeds greater than sound. Mathematical calculations of supersonic CP can be made, but there is still only one sure-fire method: use a wind tunnel or fire a test model. It's still very much a cut-and-try proposition. •

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